

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
12 August 2004 (12.08.2004)

PCT

(10) International Publication Number  
**WO 2004/068734 A1**

(51) International Patent Classification<sup>7</sup>: **H04B 1/707**,  
H03G 3/30, H03M 1/18

(72) Inventors; and

(21) International Application Number:  
PCT/EP2003/014530

(75) Inventors/Applicants (for US only): **BENGTTSSON, Magnus** [SE/SE]; Sofielundsvägen 32 A, S-214 25 Malmö (SE). **JONSSON, Elias** [SE/SE]; Södra Promenaden 3, S-211 29 Malmö (SE).

(22) International Filing Date:  
18 December 2003 (18.12.2003)

(74) Agent: **ZACCO, Denmark A/S**; Hans Bekkevolds Allé 7, DK-2900 Hellerup (DK).

(25) Filing Language: English

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT (utility model), PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

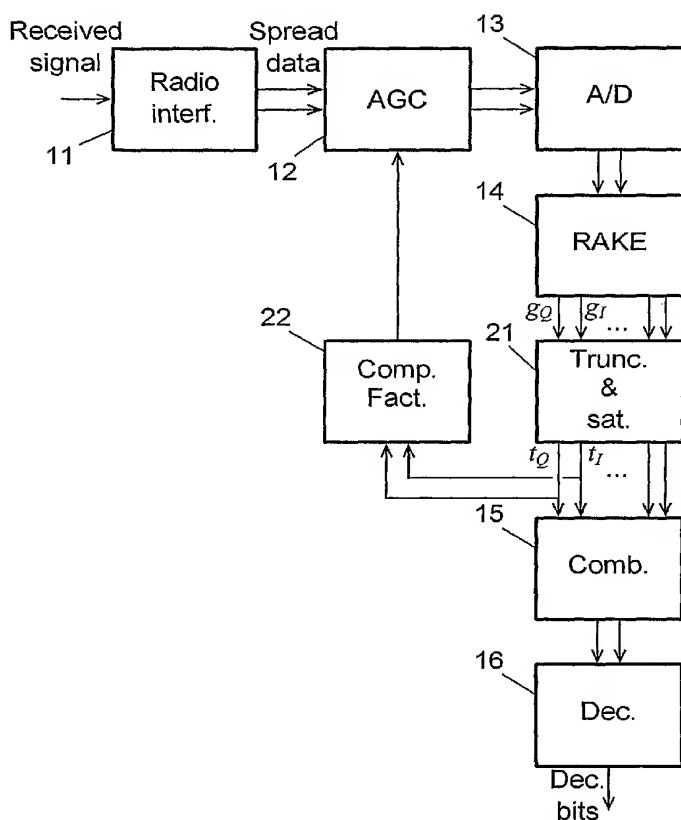
(26) Publication Language: English

(30) Priority Data:  
PA 2003 00120 30 January 2003 (30.01.2003) DK  
60/444,778 4 February 2003 (04.02.2003) US  
03388069.1 29 October 2003 (29.10.2003) EP

(71) Applicant (for all designated States except US): **TELEFONAKTIEBOLAGET LM ERICSSON** (publ)  
[SE/SE]; S-164 83 Stockholm (SE).

[Continued on next page]

(54) Title: TRUNCATION AND LEVEL ADJUSTEMENT OF RAKE OUTPUT SYMBOLS



(57) Abstract: A method of receiving radio signals in a receiver for a digital wireless communications system comprises the steps of level adjusting a received radio signal by an automatic gain control (12); and despreading the signal in a RAKE unit (14) having a number of fingers. The despread data symbols are truncated to symbols represented by a smaller number of bits than that of the despread data symbols by selecting the least significant bits of the despread data symbols. The truncated data symbols are saturated; and the despread data symbols are level adjusted in dependence of said despread data symbols, so that overflow for the truncated data symbols is prevented. In this way the number of bits used to represent the despread data symbols that are output from the fingers of the RAKE can be reduced in such a way that the loss of soft information is minimized.



**(84) Designated States (regional):** ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*